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The Roles of Urban Park's Elements in Creating Beautiful Place for The Visually Impaired

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Abstract
This paper is an attempt to reveal the setting of a beautiful park according to people with visual impairment. It contributes to the practice of architecture that is enjoyable to live by all members of society, including the visually impaired. A general notion of beauty from Kant (2000) and Dutton (2009), along with the notion of a multisensory architecture from Pallasmaa (2012) are used as an approach to understanding these phenomena. The research was conducted by observing, recording, and interviewing a group of visually impaired in relation to their activity and how they inhabit the space of an urban park. The finding shows that the sound of the fountain, the smell of the park, and the cool atmosphere are the combinations of elements necessary to create a strong feeling of beauty within urban space that is projected by the visually impaired.
Keywords: Aesthetic Quality; Urban Public Space; Inclusive Design.

1. Introduction

Beauty is important. Studies have shown that a beautiful city increases the well-being of the cities' occupants. Investing beauty in one city is the same as investing a happier future of the occupants. Burchard (1965) has linked beauty in an urban environment with physical elements such as the weather, the sky, the lakes, the riverbanks, the parks, and the squares. Further to this, Gottman (2017) refers urban beauty, including attractive and climatologically pleasant surroundings, with Riviera-type environments and a good landscaping.

Beauty is often judge visually. It is seen as a quality that is contained in an appealing object. However, the judgment of beauty does not only focus on the seen object itself but also determined by the subjective quality one has in mind (Arenibafo, 2017). In this paper, we try to portray beauty from the mind of people with visual impairment. The result of these studies is useful in contributing to the practice of universal design. By understanding the notion of beauty that is sensed and experienced by the people with visual impairment, it could convey further values and meaning that is produced by universal design.

This paper started with a literature review that is divided into four sections. The first section explains how a person with visual impairment uses their remaining senses to understand spatial information obtained from their environment and how these senses have an essential role in shaping their judgment on the quality of space. The second section explains the relationship between sense and architecture. The third section explains the notion of beauty shared in human society, and the fourth section shares the current aesthetic value in universal design. The literature review then followed with the methodology section, discussion, and conclusion.

2. Blind and Their Senses

Blind or the visually impaired is someone who has a severe reduction in vision that cannot be corrected with standard glasses or contact lenses. WHO (2015) describes blindness as a profound inability to distinguish light from dark or the total inability to see. Individuals with visual impairment process information from different sensorial inputs to construct an image of their inhibited space (Guth et al., 2010). To construct a precise image, they incorporate information from their sense of hearing, sense of touch, smell, and taste.

2.1. Sense of Hearing

For persons with visual impairments, hearing can provide an essential awareness of events beyond their immediate personal space (Guth et al., 2010). Various factors that involve the condition of the listener and the sound itself determine the role of sound as spatial information (Wightman & Kistler, 1997). These factors include sound dynamics, sound familiarity, the listener's expectations, and the possibility of translating reasonable information from the sound itself.

2.2. Sense of Touch

A sense of touch produces spatial information that is felt through the skin organ. The sense of touch is sensitive to changes in spatial elements, both directly by touching and indirectly. The information provided includes pressure, vibration, temperature, or discomfort produced as a response of the receptor nerve in the skin organ (Heller & Schiff,

1991). Cutaneous information also comes from the wind and the sun. Understanding the concept of the wind and the sun helps individuals with visual impairment recognize their location settings, whether they are in an open or closed setting, and to which direction they are facing (Guth et al., 2010).

2.3. Sense of Smell

The sense of smell is a sensory receptor located in the human nose. These receptors are sensitive to stimulation in the form of odor. For people with visual impairment, odors provide useful information to characterize or identify places and people (Rosenfeld, 2001). Some odor can be associated with specific areas and help individuals with visual impairments remember common areas or a familiar object (Ferdenzi et al., 2010).

3. Sense and Architecture

Pallasmaa (2012) suggests that architectural experience is a multisensory experience; the quality of a space, its elements, and scale are measured equally by the eyes, ears, nose, skin, tongue, bones, and muscles. Not only does it involve vision or the five senses in general, but architecture also involves several sensory experiences that interact with each other. Sensory experience influences one's judgment on the quality of a space. According to Erwine (2016), a sensescape is the rise and fall of space's quality in the form of color, texture, sound, smells, or light that connects a person with his environment. When a person moves inside a space, he connects himself with that space through various sensory experiences. Sometimes, a person enters a new sensory environment because he is driven by a desire to get a sense of comfort. Sensescape changes as the body move from one point to another.

4. Beauty and Judgement of Beauty

Beauty is a quality or a state that is perceived as pleasing and attractive in our minds. It is subjective to one's way of seeing and partly depends objectively on what is seen (Arenibafo, 2017). We perceive something as a beautiful thing if the color, form, or proportion somehow is appealing or delightful to us. In other words, the judgment of beauty is based on the taste and human sensory feelings.

The judgment of beauty has long been debated in philosophical studies. Kant (2000) stated that beauty is whatever moves one personally; it is in the cultural conditions eye of the beholder. Beauty is subjected to one aesthetic culture and values. Despite Kant's claim that beauty is judged based on subjective value, Ameriks (1982) argues that the judgment of beauty remains objective in the same sense that judgments of color and other secondary qualities are objective.

While culture has an impact on forming a subject's value towards beauty, it is generally impossible that culture would give us a taste of aesthetics for nothing in return. In 2009, Dutton claimed, aesthetically, we are not a blank slate, just as our biology makes us more likely to develop a fear of snakes than rabbits. Our intensified experience of beauty that involves emotional pleasure is part of our evolved human psychology (Dutton, 2009). It is part of the whole series of Darwinian adaptations. They became part of our biology because they helped our ancestors survived. A clear and bright sky represents safety, while a dark one indicates danger (Dutton, 2009). Beauty is also an adaptive effect that we extend and intensify in the creation and enjoyment of creating artwork and entertainment. It is a continued composition presented in society to obtain a high degree of pleasure and satisfaction.

Studies proved that human has an ideal landscape preference, a type of scenery that people from various countries liked to look at and regarded it as beautiful. This view has been reproduced by many landscape architects in megacities to create a favorable park (Montgomery, 2013). The view happens to be similar to the Pleistocene savannas where we evolved. It features broad meadows with a few trees and shrubs in the near distance. Bodies of still water are directly in view (Montgomery, 2013), completed with a path that extends into the distance, inviting one to follow it (Dutton, 2009). Genetically, we tend to like this particular landscape because this type of landscape has helped our Palaeolithic ancestors survive (Dutton, 2009).

Identifying a beautiful place means rediscovering one's past, rediscovering the impression one obtained from their favorite childhood books, their parental home, or from the pictures on the wall of one's childhood bedroom or classroom. One group may find the desert or the scree slope is a source of pleasure because they "rediscover" them through the books they read as children—tales of Red Indian and other adventure stories, as well as romantic travelogues penned in bygone times by explorers—they become a quasi-beautiful place for us (Burckhardt, 2015).

Places that do not categorize as a 'beautiful place' in a conventional way are also beautiful. Some tourists find the desert appealing; others find the northern tundra or the scree slope in the high mountains are appealing. Opinions in our society are divided, so this phenomenon could not be explained unanimously (Burckhardt, 2015). Nevertheless, the common ground does exist. We would go to the mountains, the lakes, or the oceans on holiday. This phenomenon shows that individual taste is subordinate to the collective entity we describe as "culture." In this regard, culture is described as the collective memory of anything we perceived as a beautiful place (Burckhardt, 2015).

Figure 1. The ideal landscape. The landscape architect, Humphry Repton, created in British estates in the 18th century that mimics the savanna-view (Repton, 1752).

5. Aesthetic Qualities in Universal Design

Universal design is a new attitude or approach in design that targets all users, regardless of their age or ability (Burton & Mitchell, 2006). In the past, the emphasis of design for disability was on adapting the person to fit the environment. Now, the 'social model' of disability is more common, in which the model aims to design an adapted environment to minimize disability. Rather than seeing a person as having disabilities, they are seen as being disabled by the environment (Burton & Mitchell, 2006).

When designing for the disabled, Pullin (2009) detects that aesthetic qualities usually are not being considered. It is often a product of an afterthought, an added cosmetic treatment of an already resolved and acceptable design. In the design industry, it has been an established model that accessible products had a dominant orthopedic/hospital-looking appearance with a strong "for the disabled" stigma attached to them (Pullin, 2009).

Bordas (in Liebergesell et al., 2018) states that accessible design (or universal design-red) is usually more comfortable for everyone. However, if the aesthetic quality is given secondary importance, fewer people are likely to use it. People will identify "accessible" as a product "for the disabled." Bordas contends that accessible design does not need to look "for the disabled." She states that by giving aesthetic quality and functionality equal attention, it could palliate the current division between "able" and "disabled" (Liebergesell et al., 2018).

Pullin (2009) writes that the middle ground between highlighting design for disability to make a statement versus conveying it to gain acceptance requires a skilled and subtle approach that appeals to both groups so that they can seamlessly coherent together. It can question "fixed" ways of working and thinking about architecture and formulate a critique on existing culturally constructed idees-fixes (Vermeersch & Heylighen, 2012).

Pereira, an architect who lost sight after an extensive career in architecture, claimed that his blindness had challenged his understanding of aesthetics in architecture. It shifted from a visually appealing object towards a more cutaneously-pleasant object (Vermeersch & Heylighen, 2012). His visual impairment allows him to pay more attention to the senses other than sight. He did not think of his blindness as a threat to his architectural practice, but he considers it as a unique opportunity to learn more about his other senses (Vermeersch & Heylighen, 2012).

Pereira's case is one small example of a shifted aesthetic value experienced by a person with a disability. It challenges a standardized solution that favors user's feedback to enrich overall design quality. As the environment does not only impact a disabled person's life but also portrays disabled people (Liebergesell et al., 2018), integrating aesthetic quality and functionality in inclusive design shall furthermore enact a changed attitude in how disabled people are typically viewed (Liebergesell et al., 2018).

6. Methodology

In an attempt to reveal a beautiful place for the blind, we conducted a qualitative study in a task-oriented format, in which the participants are required to explore the urban park and find their favorite place.

In choosing the place for conducting the study, we did not come up with the label of a beautiful place. Instead, we let the participant describe the place according to how they project it. However, we have come up with several considerations that made Suropati Park the ideal setting to conduct this study. Firstly, it has a landscape characteristic that mimics a beautiful place discussed in the previous section. It features broad meadows with big trees and shrubs that surround the space. It is symmetrical in plan featuring a considerable size of a fountain at both sides of the park, and has a trail that crosses from the four directions of a compass node. Secondly, it has a diverse sensory input that could be felt from its acoustic, smell, and tactile features. Other than that, Suropati Park is one of an urban park that has never left quiet since its inauguration in 1919, proved that somehow people are thrilled by an individual or combined features that is existed in the park. Days and nights, people will spend their time there to do various activities from eating, exercising, playing, and practicing music.

Figure 2. Suropati Park (Author Documentation).

Participants in this observation consisted of eight (8) blind students. Five (5) of them are having no perception of light (blind). Three (3) of them are low vision; they see a small percentage of the environment or sometimes were only depending on the light difference of the space. Participants had an age ranging from 15 to 18 years old. They were chosen because they have sufficient knowledge to understand the built environment and be willing to participate in the observation activities.

All participants have never been to Suropati park before. So, it was their first time to visit the park at the time of the observation. However, they previously traveled to several public spaces such as supermarkets or beaches on their holiday or typical day. It helps them shapes expectation and knowledge of the park that was visited.

In this qualitative research, we observe things in their natural setting, in which they typically exist as part of our everyday life. Then, we interpret the phenomena in terms of the meanings people bring to them by asking the open-ended question that gradually reflects our understanding of this phenomenon. We recorded and captured the chosen place during the observation to help us understand the involved spatial elements.

At the time of the observation, all participants started at the same point in the park. Subsequently, they were asked to find their most favorable space. Participant started to explore the space and divided into different directions. After finding their favorite place, they were asked to describe the place and reasons for choosing their preferred point in writing. Their description in writing was useful as a reference point and to avoid bias when interviewing and analyzing the data. The interview result was coded and categorized based on their similarity and their relation to the previous literature study.

7. Result and Discussion

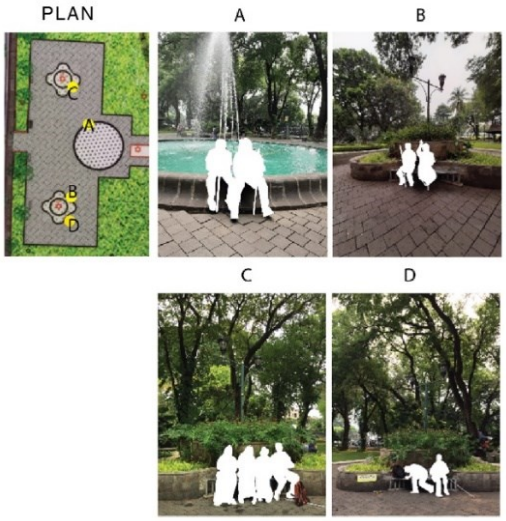

Figure 3. The favourite places were chosen and considered to have a beautiful view (Author Documentation).

When describing their favorite place, five (5) from eight (8) participants use the word "beautiful" as an adjective to express their opinion about the space (see table 1 below). In V1's word (the visually impaired participant), he said: "Now I am [in my favorite place] close to the fountain. The atmosphere is very chill! very beautiful to see! (….) It pleases the eye" Not only V1, but V3 also stated a similar view. In her description, she wrote, "I like it because it is chill, I can see the fountain and some leaves, it is beautiful…".

Unlike V1 and V3, who describe only their present situation at that time, V4 connected her present experience with her past, where she stated that she liked the place because she likes the park; she considers the park as a beautiful place. She knows this because she can feel the cool breeze and the trees surrounding her. She chose her favorite place because it is close to the fountain.

V5 described her favorite place as a beautiful one because it has a chilly atmosphere. In her words, she described, "I choose it because it was beautiful there, I can feel the chilly atmosphere…". The low vision participant (LV2) described that the park has a beautiful view because it is spacious and has a fountain.

The finding of the study is divided into two sections. The first section emphasizes the role of a person's history in attaching meaning to a beautiful place. The second section explains the role of sensory elements in constructing a beautiful place in the participant's mind.

7.1. A Beautiful Place and Attached Meanings

Although V1 and V3 are participants who have no perception of light, in other words, they were not able to see objects with their eyes. They still use the word "see" to explain the objects that they knew existed. Sometimes, they did not need to necessarily touch the object to know it exists. They can easily know it through the stimuli they received from the object's other sensorial qualities. However, they would still use the word "see" as a way to communicate the defined landscape in front of them.

With this way of communication, Individuals with visual impairment are accustomed to attach positive stimuli felt through their remains sensory with the positive meaning of space/ object that is "seen." Their previous experience with certain elements built their expectation and value towards space. V4 considered the park as a beautiful place because, often in the park, she could hang around peacefully. She likes the calming atmosphere it has, and at the park, she would meet fewer disturbances or obstacles. Moreover, she considers an object, such as a fountain, as an element that adds aesthetic value to her favorite place because she barely visits places with a fountain in it. Perhaps, only on her special occasion she would be in touch with the fountain. Furthermore, on that special occasion, she has a subtle time. Hence, she would associate the fountain with a beautiful setting.

As we talked to the participant, they would admit that sometimes, when visiting the beach or other beautiful places, they would hear people's comments about how magnificent the place was, or sometimes they would exchange stories about how beautiful their visited place in the holiday was. These stories affected their view of a beautiful place. They would add more aesthetic value to certain places that were labeled as "beautiful" by their peer or their close friends.

7.2. Sensorial Elements and Aesthetic Value

Human sensorial receptors are what connect the body and mind with the experienced space. The stimuli that are felt through the receptors are then interpreted in the mind. We will interpret something as beautiful if the quality is the thing that is received is delightful to our senses or somehow is appealing to our mind. For these reasons, in the following section, we will break down spatial elements involved in participants' sensorial experiences when deciding their chosen place and state that the place had a beautiful view.

At the preliminary stage, we would categorize the elements that are felt through each human sensory receptor. These receptors are the sense of touch, sense of hearing, sense of smell, and sense of taste for individuals with visual impairments. The elements that affect these senses are what become our focus in examining the later-found beautiful place. It is narrowed as the participant mentioned particular elements when they tried to describe their favorite place with its beautiful view (see table.1).

Table 1. Elements involved in Participants' Favorite Place (Author Documentation)

Participants (Visually Impaired/ Low Vision)	Description			Features								
				Tactile						Sound	Smell	
	Good	Beautiful	Liked	Cool Breeze	Shady Trees	Warm of the sun	Grass	Trees	Fountain	Fountain	Flowers	Grass
V1	√	√	√	√	√	√	√	√	√	√		
V2			√		√					√		
V3		√	√	√	√		√	√	√			
V4	√	√	√	√	√		√	√	√	√	√	
V5		√	√	√					√			
LV1			√		√				√			
LV2		√	√	√	√		√	√	√			
LV3	√		√	√	√				√			√

When participants were asked to describe their favorite points, five (5) of them would excitingly describe that their favorite place has a beautiful view, previously followed by the elements that construct their image of a beautiful place. In V1's word (the visually impaired participant), he said: "Now I am [in my favorite place] close to the fountain. The atmosphere is very chill! It is beautiful to see. I can hear the sound of the fountain that streams heavily. I choose this point because it is shady and chill here; it pleases the eye. A perfect place indeed!" noticed how he mentioned a beautiful thing to see, right after he said that the atmosphere was very chill, meaning that the cool breeze was one of the factors that affect his image of a beautiful place. Repeatedly, he would again mention what pleased his eye, right directly after he said that the place was shady and chill there.

There are, in total, four points that were chosen as the favorite spots by the participants (see figure 3). The first point (A) is right at the edge of the fountain, the second point (B) is at the north side of the fountain, the third point (C) is at the south side of the fountain, and the fourth point (D) is located on the north side of the fountain. Two individuals with visual impairment (V5 and V2) chose their favorite places in spot A and spot B, two low vision people (LV1, LV2) chose their favorite place at spot D, while one low vision person and three blind people (LV3, V1, V3, V4) choose their favorite places at point C. Spots A and B are considered beautiful by V5, spots D is considered beautiful by LV2, and spots C is considered beautiful by V1, V3, and V4. Based on the participants' statement as well as our observation, there are six (6) elements that shape the image of a beautiful place for the visually impaired individuals. These elements are the sound of the fountain, the smell of the flowers and grass, the cool breeze of the air, the cool temperature from the shaded trees and the warmness of the sun, the large size of the space, and the objects that exist (see table. 1).

7.2.1. Sound of The Fountain

Two (2) from five (5) participants who mentioned their favorite places as beautiful said that they could hear the sound of the fountain from their place. From point C, V1 stated that he could hear the noise of a heavily streamed down water, while V4 said that she likes the gentle sound of the splashing water that was heard from that point. Furthermore, V2, who did not mention 'beautiful' in his description of his favorite place, said that it is enjoyable to hear the high intensity of the flowing water in point A. The three statements indicate the various type of sounds that are produced by the fountains. It was not a single monotonic sound; if we pay close attention to it, the sound of the water is layered in such a way that it created a dynamic tune that masks each other. Hence, it pleased the sense of hearing.

7.2.2. The Cool Breeze

All five (5) participants who considered their favorite place as 'beautiful' stated that the atmosphere is very chill. They could feel the cool breeze that blows across their body. V3 stated that the cool breeze signifies a beautiful place he is in. The cool breeze originated from the south side of the park. It is broken down by the tall trees on the south side and flows directly through the open areas in points A, B, C, D at low speed. The cool breeze also comes from the direction of the fountain due to the difference of pressure on the surface of the water with the surface of the paving block that afternoon. Through V3's statement, it can be concluded that one of the factors that affect the perception of blind people about a beautiful place is the tactile feature he feels, in this case, the cool breeze at his favorite point in the park.

7.2.3. The Air Temperature

The shaded area with lower temperatures is the main reason why the participants chose their favorite places and considered it as beautiful. V2 stated that the place was rather hot on that day, so he wanted to find a shaded area and found himself in point B, where he considered the place as beautiful. V3 said that in point C, the trees are shady, and it is beautiful there. V5 said that he could tell that point B is beautiful from the cool atmosphere he felt.

At that time, the temperature in the park was lower than the temperature of the surrounding area, which was around 28 ° C to 30 ° C. This lower temperature is due to the micro-climate of the park that is dominated by plants. In addition to this, the temperature at points B, C, D was also influenced by the shadow of a large tree on the park's west side. The big trees reduced the amount of solar radiation that reached the area below it. So, it is cooler at that point. In addition to large trees, small plants that were planted higher than the participant's sitting position also prevented the sun's heat from reaching the participant's back.

At point A, there were no small plants or trees that protected the participants from the sun's heat. However, at this point, the chosen location is in contact with the surface of the fountain, where the surface temperature of the water will be lower than the surface temperature of the paving block. Thus, the temperature near the fountain still feels cooler than the rest of the park.

7.2.4. The Smell of The Flowers and Grass

No participant considered smell as the reason why they chose their favorite place or labeled it as beautiful. However, when the writer was at points A and D, the writer could catch the smell of the grass that evaporated from the ground surface and the faint smell of the fountain water. LV3 also approved this.

In an interview with V4, she suggested that the park would be better if it has flowers. At that time, she did not touch all of the objects in the park nor saw it, but she knew that there were no flowers at that park. Her statement shows that visually impaired individuals also value space through their sense of smell. At that time, the park was only dominated by the smell of wet grass.

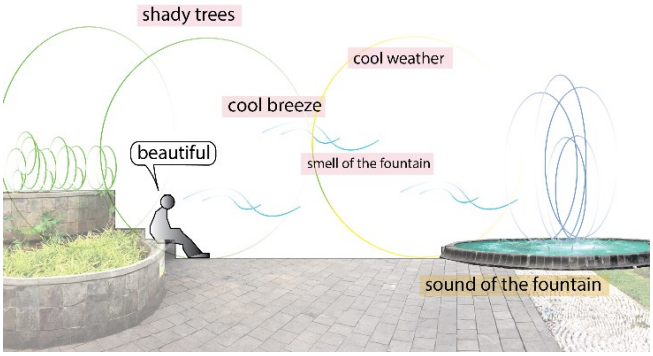

Figure 4. Illustration of a beautiful place in the park according to the visually impaired (Author Documentation).

8. Conclusion

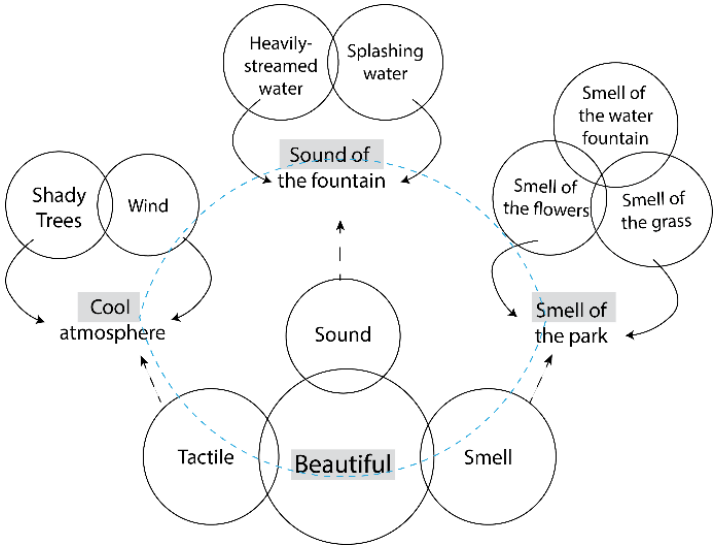

Figure 5. Elements involved in shaping the perception of a beautiful place for the visually impaired (Author Documentation).

Based on the study that has been done, blind individuals attached the idea of a space to what is felt and responded through their sense of hearing, sense of smell, and touch. In this case, the blind individual attached the idea of a beautiful space with the quality of the sound, the smell, and the tactile qualities that gives them a delightful feeling. These qualities are the cool atmosphere, the sound of the fountain, and the smell of the park (see Figure 5). Based on the case study, the cool atmosphere is the quality that is felt as a result of the wind that blows and the shady trees that grow above them. Meanwhile, the sound of the fountain is identified as the sound of the heavily streamed water that overlaps with the relaxing sound of the splashing water. Further to this, the smell of the park is identified as a combination of the smell of the flowers, the smell of the water fountain, and the smell of the grass.

The spatial qualities not only give them an enjoyable space to inhabit, but also reminds them of other beautiful places that they have visited. Sometimes, they would exchange stories about a beautiful space that they have visited, and the story will affect how they perceive a beautiful space. For example, the sound of the splashing water and the cool breeze of the atmosphere are the qualities that can be found in the beach, a place in which their peer considered to be beautiful in their story. Hence, the rest of the peers will consider the place with similar qualities to be beautiful, although they may not have visited the place before. So, the exchanged story has a role in constructing a beautiful space in their mind.

This research has proved that the spatial qualities that is felt through the sense of hearing, sense of smell, and sense of touch has a role in shaping a beautiful space for people with visual impairment in an urban park. The author suggested that further research regarding the role of sense of taste in shaping a beautiful space for the visually impaired could be developed.

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Conflict of Interests
The authors declare no conflict of interest.

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